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NOTES ON THE MAMMALS OF GRAND MANAN, N. B.,  
WITH A DESCRIPTION OF A NEW SUBSPECIES  
OF WHITE-FOOTED MOUSE.

BY MANTON COPELAND AND MORTON L. CHURCH.

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The following paper is the result of a visit made to Grand Manan by the authors lasting from September 16 to 24, 1905, nearly all of that time being spent at Grand Harbor.

The collecting of specimens was all done near Grand Harbor on the main island, our success in this being due largely to the assistance of Mr. Leonard Foster, to whom we wish to express our gratitude. We wish to thank also Mr. Outram Bangs for the generous use of his collection, and Mr. Wilfred H. Osgood and Dr. Glover M. Allen for assistance in the identification of specimens.

***Odocoileus virginianus borealis*** (Miller).

NORTHERN VIRGINIA DEER.

We were told that deer were formerly common on the island, but from all that we could learn they have been extinct for fifteen or twenty years.

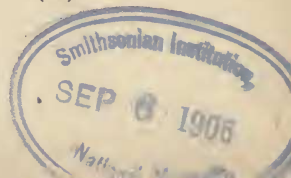
***Sciurus hudsonicus gymnicus*** Bangs.

RED SQUIRREL.

The red squirrel is much in evidence on Grand Manan and very abundant. We found it plentiful about Grand Harbor and common at Southern Head. On our tramps along the logging paths and through the woods their chattering notes greeted us on every side, and they seemed equally at home in the low growth of moist localities, or among the larger and drier spruce and deciduous woods.

Their food consisted almost entirely of spruce cones, which we noted everywhere pulled to pieces and scattered over the fallen trees, stumps and moss.

A series of thirty-six specimens was collected and carefully compared with the mainland squirrels. Owing to their great abundance it would seem as if they must have been on the island for many years, but no evident differentiation has resulted, and they are entirely referable to *gym-*



*nicus*. As the validity of this subspecies is somewhat questioned, and rests principally on size, the following table of measurements may be of interest. Both body and cranial measurements of the Grand Manan specimens are strikingly close to those of *gymnicus* from the mainland.

AVERAGE MEASUREMENTS OF ADULT *Sciurus hudsonicus gymnicus*.

Total length.	Tail vertebrae.	Hind foot.	
291.7	108.2	44.9 (11 specimens)	8 Grand Manan, N. B.
297.8	120.5	45.2 . . . . .	8 Perry, Me. Coll. of Morton L. Church.
296.5	118.2	45.2 . . . . .	10 Digby, Nova Scotia *
290.0	107.0	45.5 . . . . .	5 South Twin Lake, Me. †
290.2	121.2	44.5 . . . . .	6 Topotypes, Greenville, Me. ‡

SKULLS.

Greatest length.	Basilar length. ‡	Zygomatic breadth.	Postorbital breadth.	Length of nasals.	
43.5	34.2 (7 specimens)	25.1 (6 specimens)	13.8	13.2	8 Grand Manan, N. B.
43.2	33.7 . . . . .	24.6 . . . . .	13.9	12.7	8 Perry, Me. Coll. of Morton L. Church.
43.7	.....	.....	.....	12.5	12 Upton, Oxford Co., Me. ¶
43.3	.....	.....	13.4	12.3	5 South Twin Lake, Me. †
43.0	.....	.....	13.8	11.8	6 Trousers Lake, N. B. †

***Peromyscus canadensis argentatus* subsp. nov.**

GRAND MANAN WHITE-FOOTED MOUSE.

*Type* from Grand Harbor, Grand Manan, New Brunswick. Adult ♂. No. 168, coll. of Manton Copeland, Taunton, Mass. Collected September 19, 1905, by Morton L. Church and Manton Copeland.

*Distribution*.—Island of Grand Manan, New Brunswick.

*Characters*.—Resembles most closely *Peromyscus canadensis abietorum*, but differs decidedly and constantly, and is easily distinguishable. The color of upper parts is close to slate-gray, and lacks almost completely the dull russet of *abietorum*; dark patch in front of eye pronounced.

Measurements of body and skull average somewhat greater than those of *abietorum*.

*Color*.—Type: Upper parts slate-gray due to the presence of black-tipped and gray-tipped hairs; mid-dorsal line slightly darker; a few russet-tipped hairs, most abundant on sides and at base of tail; dark patch in front of eye more prominent than in *abietorum*; underparts white, hairs plumbeous at base; hands and feet white; tail sharply bicolor, black dorsally, white ventrally.

\* Bangs, O., Proc. Biol. Soc. Wash., X, p. 160, Dec. 28, 1906.

† Allen, J. A., Bull. Amer. Mus. Nat. Hist., X, pp. 255-256, July 22, 1898.

‡ Bangs, O., Proc. New Eng. Zool. Club, I, pp. 27-29, March 31, 1899.

§ Thomas, O., Proc. Biol. Soc. Wash., XVIII, pp. 191-196, Sept. 2, 1905.

¶ Allen, J. A., Mon. N. Amer. Rod., p. 688, 1877.

Twenty-three adult topotypes show no appreciable variation from the type.

The younger specimens differ only slightly from the old,—their general color is a little more gray owing to the presence of but few russet hairs. No very small young were obtained.

*Measurements.*—Type: Total length, 179.5; tail vertebrae, 87; hind foot, 21.5; ear, 17.5 mm.

Skull: Greatest length, 26.4; basilar length, 20; palatilar length, 11; zygomatic breadth, 13.7; mastoid breadth, 11.1; interorbital breadth, 4; length of nasals, 10.3; length of upper molar series, 3; length of lower molar series, 3.4; length of single half of mandible, 16.4 mm.

Average measurements of twenty-three adult topotypes: Total length, 179.9 (171–194); tail vertebrae, 87.8 (82–93); hind foot, 21.2 (20–22).

Average cranial measurements of ten adult topotypes: Greatest\* length, 25.6 (25.1–26.5); basilar\* length, 19.4 (19–20.1); palatilar\* length, 10.8 (10.5–11.2); zygomatic breadth, 13 (12.7–13.4); interorbital breadth, 3.9 (3.7–4); length of nasals, 10 (9.6–10.4).

Average measurements of twelve adult topotypes of both sexes of *Peromyscus canadensis abietorum* from collection of E. A. and O. Bangs: Total length, 172.7; tail vertebrae, 87; hind foot, 19.9 mm.

Average cranial measurements of eight of the same: Greatest length, 24.7; basilar length, 18.8; palatilar length, 10.2; zygomatic breadth (seven specimens), 12.2; interorbital breadth, 3.8; length of nasals, 9.7 mm.

From the above it may be seen that *argentatus* averages slightly larger than *abietorum* in body and foot measurements, and in all cranial measurements.

*Remarks.*—This beautiful silvery gray deer mouse, so strikingly different in color from its relatives of the coast, is a typical example of an insular race which, through isolation and close interbreeding, has developed characters quite its own. It inhabits the dark thick growths of spruce and fir, the more open mixed woods of conifers, birch, and beech, or some wooded hillside strewn with numerous decaying stumps and prostrate trunks. Here it makes its home in the underground passages beneath stumps and the moss covered roots of trees, and runs through the rich carpet of moist sphagnum so characteristic of the northern woods.

The mouse is common about Grand Harbor and we took forty in our traps,—baited with rolled oats,—all of which were preserved and examined.

### ***Microtus pennsylvanicus* (Ord).**

#### MEADOW MOUSE.

The meadow mouse proved to be a common species in the vicinity of Grand Harbor, and we took over seventy in our traps. They inhabited almost all the localities in which we trapped, and were equally abundant in the wet meadows and dry fields, or with the white-footed mice in the moist evergreen woods and along the edges of the heavier timber.

\* Thomas, O., Proc. Biol. Soc. Wash., XVIII, pp. 191–196, Sept. 2, 1905.

Thirty-six specimens, both old and young, were preserved and examined. The adults measured considerably larger than typical *pennsylvanicus*, but showed no appreciable differences in coat color or cranial characters.

***Lepus americanus virginianus* (Harlan).**

EASTERN VARYING HARE.

The varying hare, formerly abundant on the island, appears to be extinct and evidently has been so for a number of years. H. Herrick \* in his catalogue of the birds of Grand Manan, compiled from visits to the island in 1871-72, refers to "thousands of *Lepus Americanus*." The natives of the island attribute the disappearance of the hare to the introduction of foxes which, according to some, killed them off in the second or third year. Mr. Foster, who is an accurate observer, remembered when they were extremely abundant, and believed that in less than ten years they were all exterminated by the foxes. He had seen none for about twenty years.

A similar instance of destruction wrought by foxes is recorded for Sable Island by J. Dwight, Jr.† Cats and rabbits overran the island, and seven red foxes were introduced from the mainland. "In a single season" the foxes made an end of them all, and continuing to multiply greatly, began to exterminate the sea birds.

The hare is an animal which would fall easy prey to the fox, and this seems a sufficient explanation of its disappearance from Grand Manan.

***Phoca vitulina* Linn.**

HARBOR SEAL.

Eight individuals of this species were seen swimming together, and several others noted along the shore at Grand Harbor. They were reported as common and breeding on the island.

***Halichoerus grypus* (Fabr.).**

GRAY SEAL.

A large white "winter seal," as it was termed, was described to us as occurring on the Yellow Ledges during December, January and February, and breeding there. As this is a large seal and does not conform in breeding habits with the harp seal we feel reasonably certain that it is referable to *H. grypus*. Moreover, John Moses, a local taxidermist, is in possession of an example of this species which was taken off Grand Manan.

The "winter seals" are sometimes killed on the ledges by the fishermen but in general they keep well off the coast, and only occasionally work along the Grand Manan shore.

***Cystophora cristata* (Erxl.).**

HOODED SEAL.

Mr. Foster described perfectly this seal which had been seen for the last three years in the fall and winter at Grand Harbor. We were able to find no further evidence of its occurrence.

\* Herrick, H., Bull. Essex Inst., V, No. 2 and 3, March, 1873.

† Dwight, J., Jr., Mem. Nutt. Ornith. Club, No. 2, p. 15, Aug., 1895.

George A. Boardman\* in his list of the mammals of Maine and New Brunswick writes of this species: "Often seen on the rocks, Grand Manan and Murr ledges."

**Vulpes fulvus** (Desmarest).

RED FOX.

About twenty-five or thirty years ago a pair of foxes were brought to Grand Manan by the Pleasant Point Indians of Maine, through the influence of W. B. McLaughlin, and were set at liberty at Southern Head. They multiplied rapidly, and soon overran the island. At low tide they made their way out to some of the neighboring small islands, and destroyed the colonies of Herring Gulls which nested there. C. H. Andros, † writing on the birds of the island in '87, refers to their depredations in the following terms: "The distance to certain of the outlying islands is so short at ebb tide that the foxes have gained access to them, and thus not only have the ground breeders of the main suffered, but those on the pregnable islands, owing to the limited area, are depopulated to even a greater extent, and the former breeding grounds of the Ringnecks are destroyed." Not only did the birds suffer but the hares were also at their mercy, and were probably exterminated by them.

We learned that the foxes attained their greatest abundance about ten years ago, when trappers from Nova Scotia visited Grand Manan and killed them in large numbers. Since then they have decreased rapidly until at present they are only occasionally seen, and we failed in our attempts to secure any specimens during our stay.

**Lutra canadensis** (Schreber).

OTTER.

The otter is reported as occurring in perhaps two or more of the wilder ponds on the west side of the island. Mr. Foster informed us he had seen an otter slide last year.

**Myotis subulatus** (Say).

SAY'S BAT.

Several small brown bats were noted at Grand Harbor and North Head, and apparently they were the only species breeding on the island. Two were secured, both of which proved to be *M. subulatus*.

**Lasiurus borealis** (Müller).

RED BAT.

We saw one specimen of this species in the collection of John Moses. The exact date of its capture was unknown, but it was taken three or four years ago in the fall, and was probably a migrant.

**Lasiurus cinereus** (Beauvois).

HOARY BAT.

A single specimen was in the possession of John Moses, and was taken about the same time as the red bat. Without doubt it was captured while migrating.

\* Boardman, S. L., The Naturalist of The Saint Croix, p. 320, 1903.

† Andros, C. H., Ornith. and Ool., XII, No. 10, p. 173, Oct., 1887.